

REMARKS

The Office Action of November 20, 2006, rejected Claims 1-8 and 17-21 under 35 U.S.C. § 101 as failing to provide a tangible and concrete result. Claims 1-21 were rejected under 35 U.S.C. § 102(e) as being anticipated by U.S. Patent Application Publication No. 2004/0194060 to Ousterhout (hereinafter "Ousterhout").

With this response, Claims 1-21 remain pending.

Pursuant to 37 C.F.R. § 1.111 and for the reasons set forth below, applicants respectfully request reconsideration and allowance of the pending claims. Prior to setting forth the reasons why applicants believe that the pending claims are in condition for allowance, a brief description of the disclosed subject matter and of Ousterhout are presented. It should be appreciated, however, that the brief description of the disclosed subject matter is presented in order to assist the Examiner in appreciating the differences between the pending claims and the cited reference, and should not be viewed as limiting upon the disclosed subject matter.

Brief Description of the Disclosed Subject Matter

As those skilled in the art will recognize, and as described in the specification, a "build" generally corresponds to a build image and/or executable file, i.e., a product of a build process. The build process, whether performed by a single process or in a distributed system, consumes various source files-code files, definition files, resource modules, libraries, and the like-to generate a current "build." Of course, as those skilled in the art will also appreciate, when changes are made to the one or more source files, errors or "bugs" can be, and often are, introduced into the resultant build. The claimed subject matter addresses this situation by identifying what has changed from a previous, or reference build, and generating a test suite to test those changed areas.

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In order to ensure that modified areas have not introduced new bugs, the claimed subject matter takes a current build and compares the current build to a previous build, referred to as a reference build. For those areas of the current build that are identified as having been modified in comparison to the reference build, a test suite is generated. This test suite is generated from a master test suite according to those areas that have been modified. In other words, if Area X of a current build is modified with regard to that same area in the reference build, the various test processes and procedures that correspond to Area X are selected from the master test suite to generate the focused test suite for the current build.

The generated test suite permits efficient, focused testing on the current build to determine whether new bugs have been introduced, and/or whether previous bugs found in the reference build have been corrected. The generated test suite may be carried out in an automated fashion (as recited in some claims), manually by a tester, or by a combination of both manual and automated activities. Clearly, having a test suite focuses on those areas that have been modified will substantially increase the productivity of a tester.

Yet another interesting and important aspect of the disclosed and claimed subject matter is that in generating the test suite, those areas that are not covered by any test processes in the master test suite can be reported. Since it is the desire of software providers to offer bug-free products, it is very advantageous to report the fact that a master test suite (and, therefore, the focused test suite) fails to cover areas of a current build that have been modified.

Brief Description Ousterhout (U.S. Patent Application Publication No. 2004/0194060)

Unlike the claimed subject matter which is directed at evaluating a current build with regard to a reference build, both of which are "built" products, Ousterhout is directed at building a product, i.e., generating a "build."

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Ousterhout contends that current typical "make" processes are not ideal, especially in that they do not do well with distributing sections of the make process to other processors that can operate on a "make" in parallel. "Make" processes, as those skilled in the art will appreciate, are generally described as a series of steps to be carried out in order to create a build from the source files. "Make" processes usually rely upon a "make" file that describes the actions that must take place in order to create the build.

Ousterhout purportedly discloses an elaborate system for distributing portions of the build process, referred to as jobs, to various nodes/computers for execution in process, when possible. Purportedly, virtual file systems are created on the distributed nodes to support completion of the assigned jobs, necessary files are pre-cached to the distributed nodes, and file usage (i.e., which files are used in which processes, what files are output, and the like) is monitored. Through all of this, large builds that can take hours to complete when executed on a single computer are completed in substantially less time.

As can be seen from the above description, Ousterhout is focused entirely on creating a build: i.e., taking source files and creating the "built" product. This is in stark contrast to the claimed subject matter of taking a current build (i.e., post-build process), comparing the current build to another build (the reference build), and generating a test suite for those areas of the current build that have been modified with respect to the reference build.

35 U.S.C. § 101 Rejections

The Office Action rejected Claims 1-8 and 17-21 as being directed to non-statutory subject matter. In light of the amendments to Claims 1, 5, and 17, applicants submit that Claims 1-8 and 17-21 recite statutory subject matter in that they produce concrete and tangible results as required by 35 U.S.C. § 101.

In regard to Claim 1, applicants point out that this claim now recites the following:

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generating a focused test suite from a master test suite according to the identified areas that, when executed, will exercise at least one identified area of the current software build that has been modified with regard to the reference software build. (Emphasis added.)

Applicants assert that "generating a focused test suite" satisfies the concrete and tangible requirements of 35 U.S.C. § 101. As recited in the specification, a focused test suite can be used to efficiently test a current build, focusing on areas that have been modified. The generated test suite can be used in automated processes or for manual use by a tester. In short, the generated focused test suite represents a concrete, tangible, and useful result of the method set forth in Claim 1.

Independent Claims 5 and 17 have been similarly modified to recite generating a focused test suite. Claims 2-4, 6-8, and 18-21 depend from Claims 1, 5, and 17, respectively. Thus, applicants submit that Claims 1-8 and 17-21 now recite statutory subject matter.

In light of the above, applicants submit that Claims 1-8 and 17-21 are now in condition for allowance with regard to 35 U.S.C. § 101 and request the rejections to be withdrawn.

35 U.S.C. § 102(e) Rejections

The Office Action rejected Claims 1-21 as being anticipated by Ousterhout. For the following reasons, applicants respectfully traverse the rejections and submit that Claims 1-21 are in condition for allowance.

Claim 1

Applicants submit that Ousterhout fails to disclose the following elements of Claim 1:

- obtaining a reference software build;
- comparing the current software build to the reference software build to identify areas of the current software build that have been modified with regard to the reference software build; and
- generating a focused test suite from a master test suite according to the identified areas that, when executed, will exercise at least one identified

area of the current software build that has been modified with regard to the reference software build.

As an initial item, applicants point out that Ousterhout is directed to creating a build from source files and entirely fails to disclose or discuss working with a build after it has been generated. Based on this distinction, applicants believe that Ousterhout is entirely inapplicable to the present claims and does not anticipate Claim 1.

The Office Action pointed to Figure 4A and paragraph [0040] as disclosing "obtaining a current software build." However, the cited material is directed to a make file, i.e., the recipe for making a software build. Nevertheless, as Ousterhout elsewhere describes using the make file to create a software build, Ousterhout could be viewed as disclosing "obtaining a current software build."

While Ousterhout is directed to building a software project according to a make file, Ousterhout completely fails to disclose obtaining a reference software build in addition to the current software build. Indeed, just as with the current software build, the reference software build is a "built" software project/application. In other words, Claim 1 recites obtaining two already built software applications: a first, current software build, and a second, reference software build.

The Office Action points to Figures 4A and 4C and paragraphs [0053], [0058], and [0063] as disclosing obtaining a reference software build. Applicants traverse this assertion.

Paragraph [0053] is directed to building a software application. More particularly, this paragraph begins by explicitly stating "**in order to accelerate the build process**" Further, this paragraph describes using preload and cache management modules to **accelerate the build process**. Nothing in this paragraph is directed to obtaining a second, reference software build as asserted in the Office Action.

Paragraph [0058] is directed to providing file system support to nodes as they process a job (as part of creating a build.) As those skilled in the art will appreciate, the file system and corresponding directory structure are critical elements to ensure that the build (even a portion of the build) can operate as designed. Of course, irrespective of whether or not a file system is provided such that a build operates correctly, providing a file system does not disclose obtaining a reference software build.

Paragraph [0063] is directed to cache management and preloading nodes with the files, such as the so-called "include" files, so that the distributed build "jobs" can function more efficiently. However, preloading files onto a node or caching files at a node in order to facilitate a build process cannot reasonably be construed as "obtaining a reference software build," as recited in Claim 1.

Figures 4A and 4C are similarly deficient with regard to "obtaining a reference software build." Figure 4A illustrates components of a build machine **for building** a software **project**, and Figure 4C is directed to the exchange between a node and the build machine **to facilitate the building of a software project**. Clearly, both are directed to building a software project and, thus, make no disclosure as to "obtaining a reference software build."

At most, it is clear that the cited passages (as well as the entirety of Ousterhout) is directed to building a software application. At most, Ousterhout may be construed as obtaining a current software build. However, nothing in Ousterhout describes or suggests obtaining a reference software build.

Since Ousterhout is entirely directed to a system for building a software application, Ousterhout fails to disclose comparing two builds to determine changes to a first, i.e., "comparing the current software build to the reference software build to identify areas of the

current software build that have been modified with regard to the reference software build," as recited in Claim 1.

The Office Action points to paragraph [0076] as reciting comparing the current build and reference build. However, this paragraph is directed to how the Ousterhout system updates the file usage process (which is used to provide greater efficiency in performing the build.) It is irrelevant to the particular recitation whether or not a file maintained for file usage purposes is time stamped. Nothing in this passage suggests "comparing the current software build to the reference software build to identify areas of the current software build that have been modified with regard to the reference software build."

Applicants further assert that Ousterhout fails to disclose generating a test suite to test the identified areas in the current build, and cites to Figures 3B and 7, and paragraph [0077]. Applicants disagree.

Figures 3B and 7 are directed to building a software application and resolving conflicts that may arise when a job is distributed for parallel execution. Paragraph [0077] is similarly directed to resolving conflicts that may arise as a result of distributed parallel execution of jobs.

From a careful review of Ousterhout in general and the particularly cited passages and figures, as discussed above, applicants assert that Ousterhout fails to disclose each and every element of independent Claim 1. It is well settled that a claim is anticipated only when each element of a claim is found in a single prior art reference. See, *Verdegaal Bros. v. Union Oil Co. of California*, 814 F.2d 628, 631, 2 U.S.P.Q.2d 1051, 1053 (Fed. Cir. 1987). Accordingly, applicants assert that Claim 1 is in condition for allowance, and request that the 35 U.S.C. § 102(c) rejection of this claim be withdrawn, and the claim allowed.

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Claims 2-4

Claims 2-4 depend from independent Claim 1. As applicants assert that Claim 1 is in condition for allowance, applicants further assert that when in combination with the independent claim, Claims 2-4 are also in condition for allowance and request that the 35 U.S.C. § 102(e) rejections be withdrawn and the claims allowed.

In addition to depending from independent Claim 1, Claims 2-4 include additional recitations that further distinguish them from the cited reference. Some of these differences are discussed below.

Claim 2

Building on the information determined in comparing both the current software build and the reference software build and in regard to the focused test suite, Claim 2 recites the following:

generating information identifying areas of the current software build that have been modified with regard to the reference software build that cannot be exercised by at least one test in the master test suite.

Clearly, to a software provider, understanding what is both changed and untestable (according to a master test suite) is very important, as this may be the source of new bugs in the software application. Claim 2 addresses this situation. More particularly, information is generated regarding those areas of a current software build that are identified as being modified with respect to an obtained reference software build that cannot be exercised by at least one test in the master test suite.

The Office Action cites to Ousterhout, Figure 3B and paragraph [0077] as disclosing the elements recited in Claim 2. However, as discussed above, these references are directed to facets of creating a build (i.e., resolving conflicts that may arise when performing a build in a distributed environment), not in touching on whether a generated build is modified with respect

to a reference build. Nothing in Ousterhout remotely suggests generating information regarding areas of a current build that cannot be tested by at least one test in a master test suite.

Applicants assert that Ousterhout fails to disclose each element of Claim 2, and that this claim is in condition for allowance. Accordingly, applicants request that the 35 U.S.C. § 102(e) rejection of this claim be withdrawn, and the claim allowed.

Claim 4

Claim 4 is directed at a manner in which a current software build (i.e., an existing build) is compared to a reference software build. More particularly, Claim 4 recites:

the current software build is compared to the reference software build by comparing the executable codes for a routine found in both the current software build and the reference software build.

The Office Action cites to Figures 3A, 4a, and paragraph [0039] as disclosing this material. Applicants disagree.

Figures 3A and 4A are directed to a method for building a software project (using the distributed system described by Ousterhout) and the build machine which acts as the control center for conducting the distributed, parallel build processes. Similarly, paragraph [0039] describes the build machine and what it does for the Ousterhout system.

While the cited paragraph and figures from Ousterhout describe its system for conducting a distributed, parallel build, nothing within these citations, or Ousterhout in general, discloses comparing the executable code of a particular routine in a current build to that same routine as found in a reference build.

In light of the above, applicants submit that Claim 4 is in condition for allowance, and request that the 35 U.S.C. § 102(e) rejection be withdrawn, and the claim allowed.

Claims 5-8

Claims 5-8 were rejected for the same rationale as set forth in Claims 1-4. Accordingly, for the same reasons that are set forth above, applicants assert that Claims 1-5 are in condition for allowance, and request that the 35 U.S.C. § 102(e) rejections be withdrawn, and the claims allowed.

Claims 9-12

Claims 9-12 were rejected for the same rationale as set forth in regard to Claims 1-4, and additionally as suggesting that Ousterhout discloses the recitation: "testing the current software build using the focused test suite," as recited in Claim 9.

The Office Action cited to paragraph [0086] as disclosing "testing the current software build using the focused test suite." Applicants disagree. This passage is directed, as are all others, to building a software project. Nothing in the cited paragraph, or in any paragraph, discloses testing a current software build (i.e., testing the results of a completed build process.)

The cited paragraph is directed to measuring or benchmarking the capabilities of the various nodes to which jobs (as defined by Ousterhout) are distributed for execution. Applicants assert that benchmarking nodes that generate a portion of a build cannot be reasonably construed as "testing the current software build using the focused test suite."

For the reasons set forth above in regard to Claims 1-4, as well as the additional recited reasons, applicants submit that Ousterhout fails to disclose each and every element of Claim 9. Applicants assert that Claim 9 is in condition for allowance and requests that the 35 U.S.C. § 102(e) rejection of this claim be withdrawn, and the claim allowed.

As Claims 10-12 depend from independent Claim 9, and as Claim 9 is in condition for allowance, applicants also submit that Claims 10-12 are in condition for allowance, and request that the 35 U.S.C. § 102(e) rejections of these claims be withdrawn, and the claims allowed.

Claims 13-16

As indicated in the Office Action, while differing in scope, Claims 13-16 closely correspond to Claims 9-12. Accordingly, for the same reasons as set forth above, applicants submit that Claims 13-16 are in condition for allowance, and request that the 35 U.S.C. § 102(e) rejections of these claims be withdrawn, and the claims allowed.

Claims 17-21

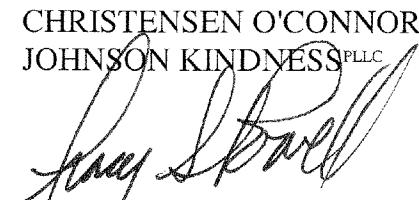
As indicated in the Office Action, while differing in scope, Claims 17-21 closely correspond to Claims 1-4. Accordingly, for the same reasons as set forth above, applicants submit that Claims 17-21 are in condition for allowance, and request that the 35 U.S.C. § 102(e) rejections of these claims be withdrawn, and the claims allowed.

CONCLUSION

In view of the foregoing remarks, applicants respectfully submit that all the claims in this application are in condition for allowance. Applicants respectfully request reconsideration of the pending claims. Early and favorable action passing this application to issue is also respectfully solicited. If the Examiner has any further questions, the Examiner is invited to contact applicants' attorney at the number set forth below.

Respectfully submitted,

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